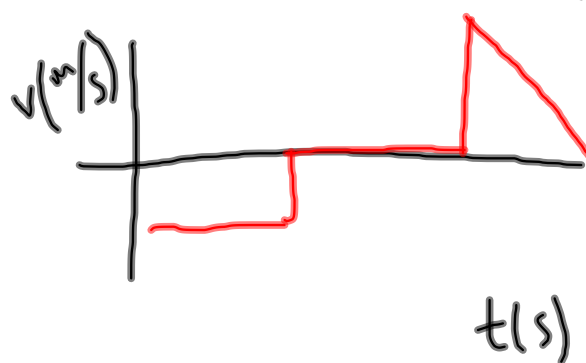
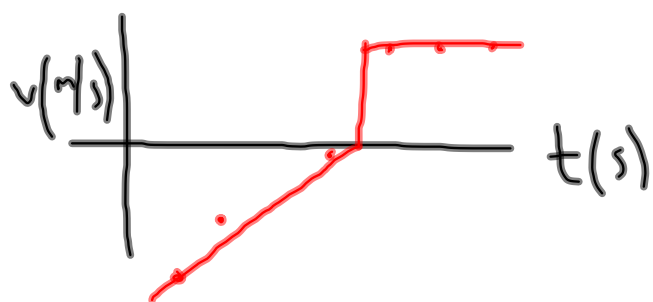
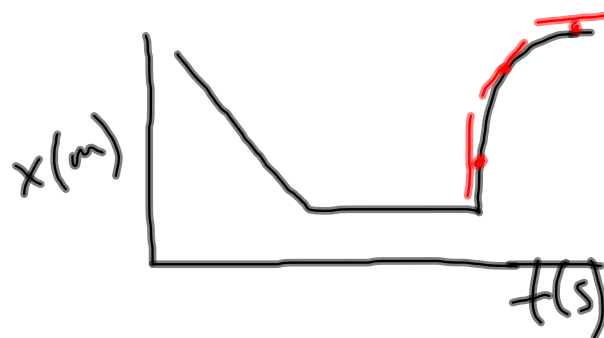
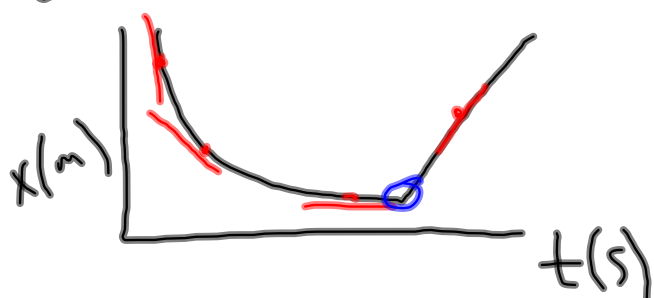
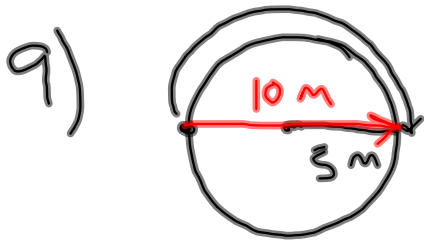


Convert:

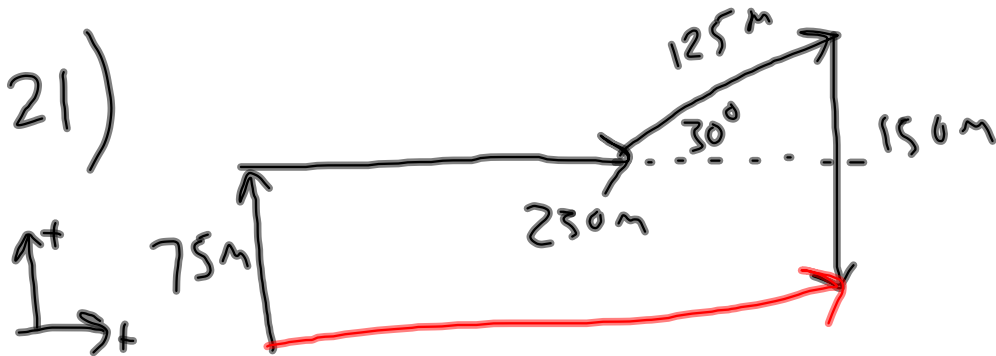




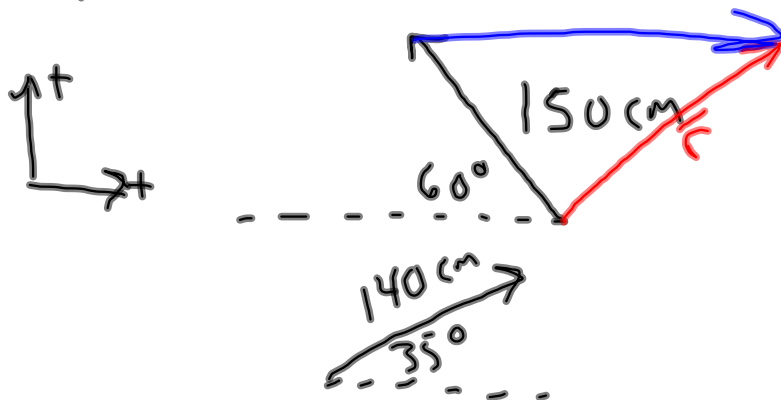
A) displacement = 10 m

B) distance = 5π m

C) displacement all the way around circle = 0 m



23)



$$a_x + b_x = c_x$$

$$b_x = c_x - a_x$$

Kinematics Eqns.

- Valid for particles under constant acceleration

$$x_f = x_i + v_i t + \frac{1}{2} a t^2$$

$$x = x_0 + v_0 t + \frac{1}{2} a t^2$$

$$v_f = v_i + a t$$

$$v = v_0 + a t$$

$$v_f^2 = v_i^2 + 2a(x_f - x_i)$$

$$v^2 = v_0^2 + 2a(x - x_0)$$

Jet lands at 63 m/s .

Takes 2.0 s to fully stop.

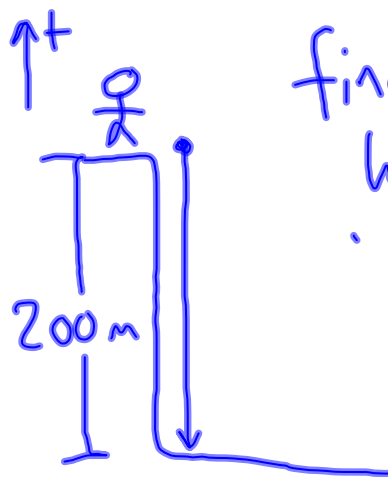
A) What is the acceleration?

$$V_f = V_i + at$$

$$a = \frac{V_f - V_i}{t} = \frac{0 \text{ m/s} - 63 \text{ m/s}}{2.0 \text{ s}} \\ = -31.5 \text{ m/s}^2$$

B) If jet lands at $x_i = 0 \text{ m}$,
what is the final position?

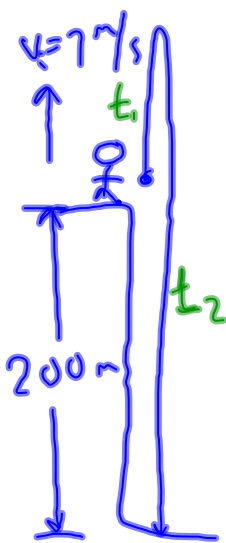
$$x_f = x_i + V_i t + \frac{1}{2} at^2 \\ = 0 \text{ m} + (63 \text{ m/s})(2 \text{ s}) + \frac{1}{2}(-31.5 \text{ m/s}^2)(2 \text{ s})^2 \\ = 63 \text{ m}$$



find time to hit ground

$$x_f = x_i + v_i t + \frac{1}{2} a t^2$$

$$t = \sqrt{\frac{2x_f}{a}} \quad a = -9.8 \text{ m/s}^2$$



how long until it hits ground? $x_f = -200 \text{ m}$

$$\text{total time} = t_1 + t_2$$

$$= .71 \text{ s} + 6.43 \text{ s}$$

$$= 7.14 \text{ s}$$

find t_1

$$v_f = v_i + a t_1$$

$$0 \text{ m/s} = 7 \text{ m/s} + (-9.8 \text{ m/s}^2) t_1$$

$$t_1 = .71 \text{ s}$$

$$h_1 = 2.49 \text{ m}$$

to find t_2 :

$$x_f = x_i + v_i t + \frac{1}{2} a t^2$$

$$t = \sqrt{\frac{2(x_f - x_i)}{a}}$$

$$= 6.43 \text{ s}$$

HW# 2:

p. 44: 4, 6

p. 46: 3, 9, 11

Quiz

Thursday
on Vectors